

ABSTRACT OF THE DISCLOSURE

A process for producing a silica-based film which comprises irradiating a film comprising at least one siloxane compound with electron beams to thereby convert the film into a film having a dielectric constant of 3 or lower and having silicon carbide bonds represented by Si-C-Si is disclosed. The film has an even thickness, is excellent in storage stability, dielectric constant, mechanical strength, etc., has low hygroscopicity, and is suitable for use as a dielectric film in semiconductor devices and the like.